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-1-

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: CHOU, Tau-San  
EISENREICH, Robert  
SANFORD, John  
BLOWERS, Alan  
SMITH, Franzine  
VAN ECK, Joyce

(ii) TITLE OF INVENTION: PRODUCTION OF TRANSGENIC POINSETTIA

(iii) NUMBER OF SEQUENCES: 23

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: Foley & Lardner  
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(C) CITY: Washington  
(D) STATE: D.C.  
(E) COUNTRY: USA  
(F) ZIP: 20007-5109

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk  
(B) COMPUTER: IBM PC compatible  
(C) OPERATING SYSTEM: PC-DOS/MS-DOS  
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: US 08/903,944  
(B) FILING DATE: 31-JUL-1997  
(C) CLASSIFICATION:

(viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: GRANADOS, Patricia D.  
(B) REGISTRATION NUMBER: 33,683  
(C) REFERENCE/DOCKET NUMBER: 89166/107

(ix) TELECOMMUNICATION INFORMATION:

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(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 23 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Gly Ile Gly Lys Phe Leu His Ser Ala Lys Lys Phe Gly Lys Ala Phe  
1 5 10 15

Val Gly Glu Ile Met Asn Ser  
20

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 21 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Gly Met Ala Ser Lys Ala Gly Ala Ile Ala Gly Lys Ile Ala Lys Val  
1 5 10 15  
Ala Leu Lys Ala Leu  
20

(2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 22 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Gly Ile Gly Lys Phe Leu Lys Ser Ala Lys Lys Phe Gly Lys Ala Phe  
1 5 10 15  
Val Lys Ile Leu Asn Ser  
20

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 21 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Lys Ile Ala Gly Lys Ile Ala Lys Ile Ala Gly Lys Ile Ala Lys Ile  
1 5 10 15  
Ala Gly Lys Ile Ala  
20

(2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 27 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Lys Arg Lys Arg Ala Val Lys Arg Val Gly Arg Arg Leu Lys Lys Leu  
1 5 10 15  
Ala Arg Lys Ile Ala Arg Leu Gly Val Ala Phe  
20 25

(2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 75 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..72

(ix) FEATURE:

- (A) NAME/KEY: mat\_peptide
- (B) LOCATION: 1..72

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

ATG GGC ATC GGA AAG TTC CTT CAC AGT GCA AAG AAG TTC GGA AAG GCC 48  
Met Gly Ile Gly Lys Phe Leu His Ser Ala Lys Lys Phe Gly Lys Ala  
1 5 10 15

TTC GTG GGT GAG ATC ATG AAC AGT TAA 75  
Phe Val Gly Glu Ile Met Asn Ser  
20

(2) INFORMATION FOR SEQ ID NO:7:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 24 amino acids
  - (B) TYPE: amino acid
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Met Gly Ile Gly Lys Phe Leu His Ser Ala Lys Lys Phe Gly Lys Ala  
1 5 10 15

Phe Val Gly Glu Ile Met Asn Ser  
20

(2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 72 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ix) FEATURE:  
(A) NAME/KEY: CDS  
(B) LOCATION: 1..69

(ix) FEATURE:  
(A) NAME/KEY: mat\_peptide  
(B) LOCATION: 1..69

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

ATG GGA ATC GGC AAG TTC CTC AAG AGC GCA AAG AAG TTT GGC AAG GCC	48
Met Gly Ile Gly Lys Phe Leu Lys Ser Ala Lys Lys Phe Gly Lys Ala	
1 5 10 15	
TTC GTG AAG ATC CTG AAC TCC TAA	72
Phe Val Lys Ile Leu Asn Ser	
20	

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 23 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Met Gly Ile Gly Lys Phe Leu Lys Ser Ala Lys Lys Phe Gly Lys Ala	
1 5 10 15	
Phe Val Lys Ile Leu Asn Ser	
20	

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 69 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ix) FEATURE:  
(A) NAME/KEY: CDS  
(B) LOCATION: 1..66

(ix) FEATURE:  
(A) NAME/KEY: mat\_peptide  
(B) LOCATION: 1..66

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

ATG AAG ATC GCC GGA AAG ATA GCA AAG ATT GCG GGG AAA ATC GCG AAG	48
Met Lys Ile Ala Gly Lys Ile Ala Lys Ile Ala Gly Lys Ile Ala Lys	
1 5 10 15	
ATC GCT GGC AAA ATC GCG TAA	69
Ile Ala Gly Lys Ile Ala	
20	

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 22 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Met Lys Ile Ala Gly Lys Ile Ala Lys Ile Ala Gly Lys Ile Ala Lys  
1 5 10 15  
Ile Ala Gly Lys Ile Ala  
20

(2) INFORMATION FOR SEQ ID NO:12:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 84 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

- (ix) FEATURE:  
(A) NAME/KEY: CDS  
(B) LOCATION: 1..81

- (ix) FEATURE:  
(A) NAME/KEY: mat\_peptide  
(B) LOCATION: 1..81

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

ATG AAG AGG AAG CGT GCA GTT AAG AGG GTG GGA CGT CGA TTG AAG CTT 48  
Met Lys Arg Lys Arg Ala Val Lys Arg Val Gly Arg Arg Leu Lys Leu  
1 5 10 15  
GCA AGA AAG ATC GCA AGG CTC GGT GTG GCT TTC TAA 84  
Ala Arg Lys Ile Ala Arg Leu Gly Val Ala Phe  
20 25

(2) INFORMATION FOR SEQ ID NO:13:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 27 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Met Lys Arg Lys Arg Ala Val Lys Arg Val Gly Arg Arg Leu Lys Leu  
1 5 10 15  
Ala Arg Lys Ile Ala Arg Leu Gly Val Ala Phe  
20 25

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 120 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

- (ix) FEATURE:  
(A) NAME/KEY: CDS  
(B) LOCATION: 1..117

- (ix) FEATURE:  
(A) NAME/KEY: mat\_peptide  
(B) LOCATION: 1..117

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

ATG CTT CTC GCT ATT GCC TTC TTG GCA TCA GTT TGC GTG TCT TCC ATG	48
Met Leu Leu Ala Ile Ala Phe Leu Ala Ser Val Cys Val Ser Ser Met	
1 5 10 15	
GGC ATC GGA AAG TTC CTT CAC AGT GCA AAG AAG TTC GGA AAG GCC TTC	96
Gly Ile Gly Lys Phe Leu His Ser Ala Lys Lys Phe Gly Lys Ala Phe	
20 25 30	
GTG GGT GAG ATC ATG AAC AGT TAA	120
Val Gly Glu Ile Met Asn Ser	
35	

(2) INFORMATION FOR SEQ ID NO:15:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 39 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Met Leu Leu Ala Ile Ala Phe Leu Ala Ser Val Cys Val Ser Ser Met	
1 5 10 15	
Gly Ile Gly Lys Phe Leu His Ser Ala Lys Lys Phe Gly Lys Ala Phe	
20 25 30	
Val Gly Glu Ile Met Asn Ser	
35	

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 111 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

- (ix) FEATURE:  
(A) NAME/KEY: CDS  
(B) LOCATION: 1..108

(ix) FEATURE:  
(A) NAME/KEY: mat\_peptide  
(B) LOCATION: 1..108

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

ATG CTT CTC GCT ATT GCC TTC TTG GCA TCA GTT TGC GTG TCT TCC GGA	48
Met Leu Leu Ala Ile Ala Phe Leu Ala Ser Val Cys Val Ser Ser Gly	
1 5 10 15	
ATG GCC TCT AAG GCA GGT GCT ATC GCC GGC AAA ATC GCG AAG GTG GCA	96
Met Ala Ser Lys Ala Gly Ala Ile Ala Gly Lys Ile Ala Lys Val Ala	
20 25 30	
TTG AAG GCC CTT TAA	111
Leu Lys Ala Leu	
35	

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 36 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Met Leu Leu Ala Ile Ala Phe Leu Ala Ser Val Cys Val Ser Ser Gly	
1 5 10 15	
Met Ala Ser Lys Ala Gly Ala Ile Ala Gly Lys Ile Ala Lys Val Ala	
20 25 30	
Leu Lys Ala Leu	
35	

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 117 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ix) FEATURE:  
(A) NAME/KEY: CDS  
(B) LOCATION: 1..114

(ix) FEATURE:  
(A) NAME/KEY: mat\_peptide  
(B) LOCATION: 1..114

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

ATG CTT CTC GCT ATT GCC TTC TTG GCA TCA GTT TGC GTG TCT TCC ATG	48
Met Leu Leu Ala Ile Ala Phe Leu Ala Ser Val Cys Val Ser Ser Met	
1 5 10 15	

GGA ATC GGC AAG TTC CTC AAG AGC GCA AAG AAG TTT GGC AAG GCC TTC Gly Ile Gly Lys Phe Leu Lys Ser Ala Lys Lys Phe Gly Lys Ala Phe	96
20 25 30	

GTG AAG ATC CTG AAC TCC TAA Val Lys Ile Leu Asn Ser	117
35	

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 38 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Met Leu Leu Ala Ile Ala Phe Leu Ala Ser Val Cys Val Ser Ser Met 1 5 10 15	
Gly Ile Gly Lys Phe Leu Lys Ser Ala Lys Lys Phe Gly Lys Ala Phe 20 25 30	
Val Lys Ile Leu Asn Ser 35	

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 111 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ix) FEATURE:  
(A) NAME/KEY: CDS  
(B) LOCATION: 1..108

(ix) FEATURE:  
(A) NAME/KEY: mat\_peptide  
(B) LOCATION: 1..108

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

ATG CTT CTC GCT ATT GCC TTC TTG GCA TCA GTT TGC GTG TCT TCC AAG Met Leu Leu Ala Ile Ala Phe Leu Ala Ser Val Cys Val Ser Ser Lys 1 5 10 15	48
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ATC GCC GGA AAG ATA GCA AAG ATT GCG GGG AAA ATC GCG AAG ATC GCT Ile Ala Gly Ile Ala Lys Ile Ala Gly Lys Ile Ala Lys Ile Ala 20 25 30	96
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GGC AAA ATC GCG TAA Gly Lys Ile Ala 35	111
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(2) INFORMATION FOR SEQ ID NO:21:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 36 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Met Leu Leu Ala Ile Ala Phe Leu Ala Ser Val Cys Val Ser Ser Lys  
1 5 10 15  
Ile Ala Gly Lys Ile Ala Lys Ile Ala Gly Lys Ile Ala Lys Ile Ala  
20 25 30  
Gly Lys Ile Ala  
35

(2) INFORMATION FOR SEQ ID NO:22:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 129 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: CDS  
(B) LOCATION: 1..126

(ix) FEATURE:

- (A) NAME/KEY: mat\_peptide  
(B) LOCATION: 1..126

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

ATG CTT CTC GCT ATT GCC TTC TTG GCA TCA GTT TGC GTG TCT TCC AAG	48
Met Leu Leu Ala Ile Ala Phe Leu Ala Ser Val Cys Val Ser Ser Lys	
1 5 10 15	
AGG AAG CGT GCA GTT AAG AGG GTG GGA CGT CGA TTG AAG AAG CTT GCA	96
Arg Lys Arg Ala Val Lys Arg Val Gly Arg Arg Leu Lys Lys Leu Ala	
20 25 30	
AGA AAG ATC GCA AGG CTC GGT GTG GCT TTC TAA	129
Arg Lys Ile Ala Arg Leu Gly Val Ala Phe	
35 40	

(2) INFORMATION FOR SEQ ID NO:23:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 42 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Met Leu Leu Ala Ile Ala Phe Leu Ala Ser Val Cys Val Ser Ser Lys  
1 5 10 15

Arg Lys Arg Ala Val Lys Arg Val Gly Arg Arg Leu Lys Lys Leu Ala  
20 25 30

Arg Lys Ile Ala Arg Leu Gly Val Ala Phe  
35 40